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EMERGENCY ENTIMOLOGICAL SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE.

Reporting cooperation between Federal, State and Station Entomologists and other Ajencies.

Number 14. August 1, 1918

FOREWORD.

Because of the increasing cost and scarcity of paper it is requested that those submitting reports for this bulletin condense their statements to essentials, This number has been rather severely edited, omitting many records of incidental injuries. Hereafter the bulletin will deal with emergency situations principally.

All matter should be transmitted to Dr. L.O. Howard in time to reach the editor by the 25th of the month.

REPORTS OF SECTIONS OF THE BUREAU OF ENTOMOLOGY.

CEREAL AND FORAGE INSECT INVESTIGATIONS.

The pre-harvest inspection of eastern winter wheat shows unmistakably a very considerable increase of injury by stubble-infesting insects east of the Appalachian Mountains. The Hessian fly has increased its injury and abundance and doubtless has been responsible for reduced yields in eastern Pennsylvania, Maryland, and parts of Virginia.

Joint worm injury has been very prevalent, and apparently is on the increase. A considerable outbreak of a stubble-infesting sawfly has appeared in the vicinity of Gaithersburg, Md., and also near Carlisle, Pa. The territory infested evidently covers several hundred square miles. The insect has not been specifically identified, but the maggot and its work in the wheat straw strongly resemples that of Cephus cinctus, which is abundant and injurious in the Dakotas at present. The eastern species may prove to be either an introduced pest or a native grass-infesting species which has sdapted its habits to wheat. The maggot severs the straw just at the sucface of the ground, about the time the wheat is to be harvested. It then constructs a silken cell inside the stubble, where it remains all winter. A farmer of Gaithersburg, Md., reports that on his farms and those of his neighbors the insect was responsible for a reduction in yield of approximately 25%. On many of these farms a rotation has been followed which requires the growing of wheat for two years in succession on the same soil.

Increased damage from insect pests which have the habit of wintering over in wheat stubble doubtless will continue as long as the practice of allowing stubble to remain undisturbed for two or more years continues to be

generally followed throughout the eastern half of the winter wheat belt. Indications point to a considerable increase in Hessian fly injury to the eastern winter wheat crop of 1919. It will be advisable this fall to renew our efforts in order to secure the sowing of wheat during the fly-free period th throughout this section.

Laphygma frugiperda: A considerable outbreak of the fall army worm occurred in southern Florida and in seven counties in Alabama during the latter half of July. W.E. Hinds reports the insect as pupated in Mobile, Baldwin, Escambia, Wilcox, Jefferson, Shelby, Bullock, Montgomery, and Pickens Counties. Little parasitization was noticed. Should present warm weather continue well into the fall of the year, it seems quite possible that injury to late corn by this insect may occur in the Atlantic Coast states during the late summer and throughout the fall.

European corn stalk borer: Slight extensions of the territory infested by the European corn stalk borer have been reported during the past month in the towns of Lynnfield, Salem, and Peabody. The hearty informal cooperation of the Massachusetts Tree Wardens and Foresters with the Gypsy Moth field staff has been promised in keeping the pest under surveillance. The life history studies of the borer are proceeding satisfactorily.

Grasshoppers: Mr. C.N. Ainslie, who has been temporarily conducting the control work in North Dakota, reports great abundance of grasshoppers in Adams and Bowman counties, but reports that the county commissioners are furnishing materials for poison bait free to all applicants, and that many of the other counties of the state are well organized and are fairly well prepared to fight the pest. The infestation is not uniformly heavy, but in places is exceedingly severe.

Mr. V.L. Wildermuth reports his experimental work with crude arsenious oxide as a substitute for Paris green in grasshopper baits as being successful where the crude arsenic was in a finely powdered consition, although the crystalline crude arsenic was of little use, it being impossible to mix it satisfactorily with the other ingredients of the bait.

Barley bran has been used by Mr. L.P. Rockwood with entire success where wheat bran could not be obtained. He found the barley bran cheaper and because of its coarse texture, it seemed exactly suited for a grasshopper bait.

According to Mr. E. V. Walter, the grasshopper situation in Iowa on June 24 had assumed an alarming aspect, especially in the southwestern part of the state. Fourteen counties were involved where the spring had been warm and dry. Mr. Walter used canned tomades successfully as a substitute for fruit where the latter could not be readily obtained.

Mr. Dean A. Ricker, working under the direction of Mr. J.J. Davis, in the vicinity of Janesville, Wisconsin, Has been securing good results in grasshopper control work by the use of the following formula: 1 pound of crude arsenic, 12 1/2 pounds each of wheat bran and sawdust, combined with the usual amounts of molasses and water.

Other Insects: Mr. V.L. Wildermuth conducted a survey of the territory formerly infested by range caterpillar in northwestern New Mexico during the

first half of July. He found the caterpillars present, but much morecreduced in numbers than was the case last year. Certain areas which were literally alive with caterpillars in 1913 and 1914 are at the present time absolutely fre from the pest.

Mr. C.N. Ainslie, reports considerable injury to barley and alfalfa by Loxostege sticticalis near Mott, N.D. The insect had at first fed upon Russian thistle, pigweed, and lambs quarter, afterwards transferring its attention to the cereal and forage crops. The outbreaks are of a more ôreless local character.

A considerable outbreak of the yellow striped army worm, Prodenia praefica, in alfalfa, is reported by Mr. R.L. Nougaret, in Fresno, Tulare, and Kings Counties, California. The insect assumed the army worm habit, feeding during the cooler parts of the day, and seeking the shade during the heated period. It was found possible to control the pest by using the usual control methods of ditching, brush dragging, etc.

Mr. Marshall Hertig reports an outbreak of the seed corn maggot in Becker County, Minnesota, on navy beans. The injury occurred almost exclusively on light sandy soil which was in grain during the growwng year of 1917. The damage varied from 50% to 75% of the stand.

W. R. Walton.

SOUTHERN FIELD CROP INSECTS.

Under date of July 20 Mr. J.D. Mitchell, of Victoria, Texas, reports the second generation of Diacrisia virginica doing argheatedeal of injury attacking cotton in the east. tactitnappears that in many cases the moths laid their eggs all over the cotton fields for the reason that the weed supply was short on account of dry weather. He states that three pounds of Paris greeh and five pounds of lime boiled in five gallons of water and the solution diluted by the addition of 45 gallons of water is the only remedy that has any effect on them. A greater number of species of insects have been feeding on cotton this season than during other seasons. Several new species of insects which attack cotton have appeared in that section this year. On account of the heat and dry weather cotton is now doing well. The boll weevils are numerous but have not been able to destroy the crop on account of the intense heat and lack of rain.

On July 19 Mr. Max Kisliuk Jr., reported a sudden and dangerous outbreak of hordes of semitropical army worms at Miami, Florida destroying entire fields of castor beans, sweet potatoes, cotton, peppers, sunflowers, etc., and appearing in threatening numbers upon peanuts and various weeds. The worms have been found feeding upon citrus trees. This infestation is serious at Nero, West Palm Beach, Miami, Cutler, Davie, Nabasso, Gifford, and probably all along the east coast from St. Augustine to Key West.

Mr. McGregor reports from El Centro California, that the cotton crop of the Southwest is suffering seriously from depredations of Aphis gossypii; Lygus pratensis, and Euschistus impictiventris. The aphis injury is especially severe in the Yuma Valley and also the Imperial Valley. The Lygus injury is appearing earlier than usual.

The cotton red spider is reported doing serious damage in many parts of the Atlantic Coast states, especially in South Carolina.

W. D. Pierce.

CITRUS AND SUBTROPICAL INSECTS.

Mr. Woglum in southern California reports that the aphids of citrus trees, especially the melon aphis, (Aphis gossypii) have been more destructive this season than has been noted for several years. These insects appear in large numbers on the new growth every spring, but their increase is unually quickly checked and they are held in commercial controlby their several coccinellid, dipterous and hymenopterous enemies. The present season the natural enemies did not effect control in some districts until much damage had been done to the blossom growth.

The outbreak of citrus thrips previously reported has been general throughout the citrus districts of Tulare County, navals appearing to suffer greatest injury. The fruit is badly scarred, and the growth on young trees malformed and checked. The summer dispersion of this pest to hosts other than citrus is rapidly taking place.

The hatch of black scale is now well along and fumigation will be started in some districts during the latter part of July. This method of insect control will be prosecuted with customary vigor excepting in the hotter interior balleys where scale infestation appears to be light. Preparations for the use of liquid gas on a much more extensive scale than last year are being carried on at the plant manufacturing this product. The first run of fifty cases (10.000 pounds) of sodium cyanid was turned out July 10-12 for Tulare County where liquid gas will be used exclusively in fumigating approximately 1,000 acres. A new and improved pump for spplying this gas to the trees has been perfected.

C. L. Marlatt.

FOREST INSECTS.

In the mountains of North Carolina, the lime inch worm Erranis tiliaris is playing havoc with the forests on the mountainsides. At Bakersville they seem to be especially fond of the oak, black walnut, chestnut, and in the areas where they first appeared they have eaten the weeds, mountain laurel, locust, and practically all trees and shrubbery. The poplar seems to be about the only tree that the foliage had escaped being eaten. The people from near the areas in which this caterpillar is found are getting uneasy for fear their crops may be attacked when forest leaves become scarce. And even if they do notbother the cultivated crops they will eventually ruin the young timber if they continue their work.

J. Kotinsky.

TRUCK CROP INSECT INVESTIGATIONS.

The first important outbreaks of the season have happened during this month. Of these, the potato aphis (Macrosiphum solanifolii Ashm.) was reported almost simultaneously during the first week of July in injurious numbers in Massachusetts, Connecticut, Pennsylvania, New York, New Jersey, Delaware and Maryland. There have been more inquiries in regard to this insect in this region than of any other insects injurious to truck crops. It is interesting to note that in some regions of Maryland the insect is being held in partial check by an internal parasite (Aphidius rosae Hal.). Material furnished by Mr. O.K. Courtney, from Worcester County, Md., and vicinity, showed that from 75% to 90% of the aphids were parasitized. This aphis is a still greater pest than in 1917, and the cause obviously is the almost unprecedented cool weather continued up to July. Its presence has caused great losses to the growers of potatoes and tomatoes in the region mentioned.

The semi-tropical army worm (Prodenia eridania Cram.) has been reported as a pest generally distributed in Florida where it has severely attacked castor beans, as well as being injurious to potato, sweet potato, tomato, fennel, okra, cotton and crops generally. Already it is estimated to have caused the loss of thousands of dollars to the castor bean crop, and it is engaging the attention of a considerable force of entomologists.

The sweet-potato weevil (Cylas formicarius Fab.) has been reported from many new localities in Louisiana and Texas. It has also been taken on a new food plant, Ipomoea pandurata, a wild perennial morning-glory with a tuber of immense size.

The potato flea-beetle (Epitrix cucumeris Harris) appears on tomato and potato. It is so abundant that it also attacks other vegetables including peas, lettuce, cabbage, corn and beets. Its injuries extend through Maine, Massachusetts, Connecticut, New York, New Jersey and Pennsylvania, westward to Indiana.

F. H. Chittenden.

REPORTS FROM STATE OFFICERS.

CALIFORNIA.

During the present summer the Upper Sacramento Valley, the northeast counties, the west side of the San Joaquin Valley and the Central Coast Counties of this state have suffered from one of the worst outbreaks of grasshoppers that we have had. Melanoplus devastator Scudd. and M. differentalis Thomas are the chief offenders. We have has the best success in combatting these by the use of poisoned bait and are now, through all agencies available, trying to inform the farming communities of the need for using this as well as other agencies when demanded.

The two-spotted mite or red spider, Tetranychus telarius Linn. is now very abundant and destructive in the Sacramento Valley where it is attacking beans and stone fruits, and in the Santa Clara Valley where it is attacking prunes and almonds.

The Tent caterpillars have also been unusually bad this past season in the Russian River Valley where they have done cosniderable damage to prunes orchards. In this connection it might be well to mention a peculiar thing which has been brought to our attention by Mr. deOng. He reports that large numbers of hogs in this section have been killed by eating the caterpillars. The stomachs of the killed swine were found to be completely filled with silk formed into a dense ball.

The drought, which has been quite marked this year, is partly accountable for the plague of grasshoppers and for the weak resistance of plants to attacks of the red spider and other pests.

The Argentine Ants have again become quite troublesome in and about Berkeley.

Edward C. Van Dyke.

CONNECTICUT.

The stalk borer, Papaipema nitela Guen., is unusually abundant and is causing considerable injury to corn.

The elm leaf beetle, Galerucella luteola Müll. is more abundant than for several years and the foliage is now turning brown on elms in many localities.

W. E. Britton.

FLORIDA.

An unusual outbreak of the Fall Army Worm (Laphygma frugiperda) was reported to the north of Gainesville, Fla., on July 13th. In two properties visited the owners applied zinc arsenite and calcium arsenate at the suggestion of the Plant Board. The poisons were applied with a dusting machine. While one owner had been successful in largely heading off the worms by plowing furrows, some poison was used to kill the worms that had already gotten past. Two days later both owners reported that each kind of poison effectively killed the worms. The infestations occurred in two corn fields and grass lots. A nearby cotton field was threatened, and already slightly infested when the property was visited.

On another property, where no effort to check the worms was made, a small field was completely eaten out.

An outbreak of what appears to be the same worm was reported on grass from Lake Helen, Fla.

E. W. Berger.

GEORGIA.

The boll weevil is now present further up the state than it was at this

time last year and is more numerous. The farmers, as a rule are making a good fight on the weevil. It seems that the weevil is especially bad in fields where a lot of old stumps have been left.

The Cotton Red Spider is doing a great deal of damage to cotton this month in many sections of the state. We have had very hot dry weather which has been very favorable for the increase and spread of this insect. In many cases three to five acres are infested in a field and much of this infested cotton has shed off a great number of leaves and squares. Spraying has proved effective where thoroughly done.

A. C. Lewis.

KANSAS.

The extension entomologists have made a survey of the main portion of the wheat belt to determine the Hessian fly situation. In the central part of the belt there is an infestation in the old stubble varying from one to six per cent. Conditions throughout the wheat belt are most favorable for early plowing of the stubble, and since the wheat growers are well aware that an early preparation of the seedbed not only produces better yields but also helps greatly to control the fly, we do not believe the fly will increase enough to seriously threaten the new crop.

The corn ear-worm is exceptionally abundant.

The chinch bugs are increasing slowly in the fields. They are not serious enough to injure the corn this year, but may increase in sufficient numbers to warrant early winter burning. In several locations in Southern Kansas the bugs caused some damage to corn and sorghums after the wheat and oat harvest.

Grasshoppers. The grasshopper situation in Western Kansas is well under control. However, there are still enough 'hoppers left to do some injury this fall to the new wheat. The farmers will be kept in close touch with the situation. Throughout the eastern portion of the State the 'hoppers are unusually abundant and, since the wheat and ost harvest, have injured some corn, alfalfa, and truck crops. Press notices have been sent out and in most cases I believe the farmers will be able to control the grasshoppers without any assistance from the extension men.

The interest in beekeeping has been remarkable this year and I am confident that we will have a largely increased production. Very few of the beekeepers are trying to raise comb honey, nearly all realizing that they can get much more by producing extracted honey. Up to now we have had excellent weather for honey production and I know of some colonies that have already produced 150 bounds of surplus.

Geo. A. Dean.

MAINE.

The work of the clover seed-caterpillar (Lasperyresia interstinctana) is conspicuous by its abundance, certain fields showing as high as 24 per

cent of heads infested.

The apples suffered severely this spring from the budmoth (Spilonota ocellana), a constant factor in Maine. In June the spring canker-worm was unusually common and the deformed apples abundant in York County are showing the characteristic results of heavy attack by plum curculio (Conotrachelus nenuphar).

Corn is suffering frequent loss from the stalk borer (Papaipema nitela)

Edith M. Patch.

MASSACHUSETTS.

Thus far this has been emphatically a Plant Louse year, these insects being extremely abundant on cucumbers, squashes, turnips, and of late, on potatoes.

NEW MEXICO.

The cabbage bug, Murgantia histrionica, is beginning to show up in injurious numbers. This is one of our worst garden pests in the state. The dry summer has made injury from the red spider worse than usual. They have affected a wide range of plants, including beans, melons, sweet potatoes, apples, cherries, and peas. Recent showers in various localities, may reduce further injury from this sorce somewhat.

In the northern counties there has been considerable damage from the fruit tree leaf roller, Damage from the bean beetle continues, and in many places it is difficult to get arsenate of lead for spraying purposes.

D. E. Merrill.

NEW YORK.

The caterpillars of the white marked tussock moth Hemerocampa leucostigma. have been unusually abundant and injurious in orchards of the western fruit growing sections, as much as 85 to 90 per cent of the apples in unsprayed orchards being injured and 5 to 10 per cent damaged in orchards which had received a good calyx spray. Most of the injury was in orchards where spraying was only moderately good or poor.

The wheat midge (Cecidomyia tritici) appears to be generally abundant and at least somewhat injurious in Erie, Genesee, Niagara and Orleans Counties. White Wheat, No. 6, so generally grown in this section, is moderately infested, while Jones Red Wave appears to be more susceptible, samples from the latter showing approximately 20 per cent shrunken grains and an average of nearly 20 maggots per head. One head from Orleans county contained 39 maggots. Samples from a field of No. 8 Indicates 28 percent of shrunken grain. No variety appears to be entirely exempt, though white chaff, a bearded wheat, is relatively immune. It is reported that in areas infested by wheat midge last year, there was some ten per cent of shrunken grain, a condition which is very likely approximated this season.

E. P. Felt.

OHIO.

Since my last report we have in cooperation with the Extention Department of the State University completed an entimological survey of Ohio. About seventy counties were entered by entomological surveyors, and form 12 to 25 or more wheatfields in each county were entered and carefully examined. These fields were quite well distributed in each county.

We found nearly all of western Ohio to be heavily infested with wheat jointworm, the crop as a whole being cut from 20 to 30 per cent by this pest in the heavily infested areas. Over the northwestern part of the State the jointworm is heavily parasitized and we are inclined to believe the crest of the attack is past and that the State will suffer less from its work next year than it has the present season.

Both chinch bugs and Hessian fly are present in considerable numbers in some eight or ten counties in northwestern Ohio and constitutes somewhat of a menace to next year's crop. With favorable conditions this menace may be greatly diminished before next year.

The wheat midge was found everywhere and we estimate that the crop of the whole state was reduced fron 1 to 4 per cent through this agency. Occasional fields were ruined by it.

The potato and tomato aphid was abundant in the northwestern counties and present in smaller numbers nearly everywhere. Since the completion of the survey it has gotten under rapid headway over nearly the whole of northern Ohio and has been reported to us by letter from eighteen different localities within the last two or three weeks.

The fall webworm is very conspicuous over the most of the State. I think I have never seen the nests quite so common. Where orchards, especially young orchards are neglected, from one-tenth to one-third of the trees are apt to be stripped. The nests are common on low-growing shrubbery, in forest trees and on almost everything on which the insects live.

The cherry and pear slug has caused greater damage to cherry and pear than has been the case during the past fifteen years. Many trees, especially in northwestern Ohio, have been defoliated, and since the August brood is likely to be larger than the first brood and repeat the defoliation, a great number of trees will go into the winter in a greatly weakened condition, or with a prolonged drought they may die before winter.

H. A. Gossard.

OREGON.

The spider mite Tetranychus telarius is doing serious injury to beans in portions of the Willamette valley. The parsnip web worm Depressaria heracliana which was first reported from Oregon in 1915, is this year reported as ruining the seed crops of one of the large seed companies near Portland. Two species of blister beetles are reported as injuring crops in Eastern Oregon. Cantharis cyanipennis is reported as injuring alfalfa in Umatilla, Union and Baker counties, and Epicauta cardalis is proving a general pest

in Jefferson, Crook and Deschutes counties, The cherry maggot Rhagoletis cingulata which due to the late ripening of cherries last year ruined from 50 to 90 per cent of the crop has caused an estimated loss of from 30 to 50 per cent of the late cherries this year. Where demonstration sprays with sweetened poison was applied for adult flies the loss was reduced from 30 to less than 2 per cent. The pear and cherry slug Caloria cerasi is unusually abundant throughout Western Oregon and where spraying has not been practised the foliage of entire orchards is practically skeletonized.

The second generation of the Western potato flea beetle Epitrix subcrinita is appearing in the fields promises to be very serious. The earlier generation was practically negligible. The potato stalk borer Papaipema nitella, while present in the state for a number of years, is reported this season for the first time as doing serious injury throughout the Northern portions of the Willamette Valley.

The English ear-wig Forficula auricularis is reported from Portland for the first time as a pest about roses and in the house. The writer, however, states that last year the pest was noticed for the first time.

The bean weevil Acanthoscelides obtectus and the pea weevil Laria pisorum have been present as adults in the fields for about five weeks. It is extremely difficult to find fields where the majority of the ripening seeds are not infested with grubs. The principal activity of the Department of Entomology at the College at the present time is to advise millers, warehousemen and consumers against the stored product pests which are gaining such a foothold at present. The open construction of the warehouses makes effective control by use of gas practically impossible, and it is hoped to obtain some relief by general publicity campaigns combined with the use of heat of the products in the home.

PENNSYLVANIA.

Throughout the state, reports indicate a serious and widespread attack by plant lice. Many crops are reported as being killed or seriously injured. The crops most seriously attacked seem to be potato, tomato, spinach, beets, cabbage, and other vegetables. Small home gardens are suffering very severely, and in many cases are practically ruined. There are heavy demands for tobacco extract and Truck growers are experiencing difficulty in obtaining a sufficient supply. Excessive drought in many sections has intensified the injury resulting from attacks of the lice. During the past two weeks or more, plant lice in large numbers have been in the air, and the spread from infested to noninfested crops has been rapid.

Outbreaks of thrips on onion (Thrips tabaci), have occurred in Erie and Philadelphia Counties. Reports have been received from other counties of injury to onions which is undoubtedly caused by the same insect.

Many reports have been received of injury to potato and corn by borers. In many instances where infested plants were examined, the injury was due to the attacks of the Stalk borer (Papaipema nitela). Several fields examined showed approximately 90% of the potato plants killed by the potato stalk borer (Trichobaris trinotta).

The plum curculio (Conotrachelus nenuphar) has been quite prevalent in many sections, and the fruit is showing a large amount of scarring as a result

of the activity of this insect. Apples, especially in those sections where spraying has been neglected, are injured more than other fruits.

A small outbreak of the seventeen year locust (Tibicen septendecim) was reported from Adams County.

From some of the western and southwestern counties, reports have been received of serious injury to clover from the clover root borer (Hylastes obscyrys). Injury from this source has doubtless been augmented by the excessive drought.

C. H. Hadley.
M. D. Leonard.
S. W. Frost.

SOUTH CAROLINA.

We are having a severe and wide spread red spider outbreak. Besides the violet and pokeweed the principal injury is to cotton. One case of severe injury occurred on crimson clover. This is the most severe occurrence of red spider that has occurred in this State during the eleven years I have been here. Heavy rains set in about ten days ago and this has partly checked the pest. In a number of sections of the State heavy rains are falling at the present time and this will greatly assist all efforts at checking the injury.

We forecasted this outbreak last spring on conditions that dry weather occur during latter June and during July. The severe weather last winter appeared to have little effect on the red spider while it must have killed many of the natural enemies.

A.F. Conradi.

SOUTH DAKOTA.

The sugar beet web worm, Loxostege sticticalis, has been most abundant in the fryer sections of the state and has done an immense amount of injury, especially to garden truck.

The plum web-spinning sawfly Neurotoma inconspicua, unusually abundant and injurious to plum trees this year. Euenonhorus parvulus, has been doing serious injury to wheat in several different localities in South dakota.

Grasshoppers are still the most important of our injurious insects and the injury they will do this year will probably surpass that done last year.

The army worm, Cirphis unipuncta, has appeared in several widely separated sections of the state.

The field cricket, Gryllus abbreviatus, are beginning to make their presence felt and considerable trouble from these insects in alfalfa fields during the next two and a half months.

The imported cabbage worm, Pontia rapae, and the Cabbage looper Autographa brassica, are both nore than usually abundant this year.

H. C. Severin

TENNESSEE

The Southern conr root-worm (Diabrotica 12-punctata) has been unusually bad this season in river bottom lands where corn has been successively grown for several years. It has been necessary to plant another crop in the worst affected fields.

Peach tree borer, (Sanninoidea exitiosa) has been very destructive in the peach nursery stock and in the orchards where little attention has been directed to worming.

Strawberry weevil, (Anthonomus signatus) has been destructive in many of the strawberry fields in Lauderdale County, in the vicinity of Ripley.

G. M. Bentley.